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## ABSTRACT

A multiprocessor system includes a plurality of data 1 2 processors. Each data processor includes: a data processing core; a memory forming a local portion of a unified memory; 3 and a global memory arbitration logic. Each local portion of 4 5 the unified memory is dual ported. The global memory arbitration logic arbitrates access to a first port among the 6 7 corresponding data processing core and a close data processing 8 The global memory arbitration logic arbitrates access 9 to a second port of another data processor among data 10 processing cores having a far connection to that local portion 11 of unified memory. The dual port memory is preferably time 12 multiplexed. The global memory arbitration logic grants a 13 local peripheral bus priority access to both ports of the local portion of unified memory. 14